GRIFFIN INTERNATIONAL INC

January 14, 1999

Mr. Chuck Schwer
State of Vermont
Department of Environmental Conservation
Waste Management Division
Sites Management Section
103 South Main Street/ West Building
Waterbury, VT 05671-0404

RE: Site Investigation Report for Rutland Masonic Temple, Rutland, VT
(VTDEC Site #98-2385)

Dear Mr. Schwer:

Enclosed please find Griffin's Site Investigation Report for the Rutland Masonic Temple. This report presents the findings from the drilling and groundwater sampling conducted in November.

If you have any questions regarding the report, please call.

Sincerely,

Kevin McGraw
Hydrogeologist

Enclosure

cc: Mr. James Goss, Rutland Masonic Association (w/o enclosure)
GI Project #99841382

P.O. Box 943 • Williston, VT 05495 • Phone/Fax 802-865-4288
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REPORT ON THE INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION at RUTLAND MASONIC TEMPLE 51 WASHINGTON STREET RUTLAND, VERMONT (VTDEC SITE #98-2385)

January 11, 1999

Prepared for:

Rutland Masonic Association
51 Washington Street
Rutland, VT 05701

Prepared by:

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Griffin Project #: 99841382

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I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at the Rutland Masonic Temple, located at 51 Washington Street in Rutland, Vermont (see Site Location Map, Appendix A). The following investigation has been conducted to define more clearly the degree and extent of petroleum contamination which was detected in the soils at this site during the removal of a No. 2 Fuel Oil underground storage tank (UST) in May of 1998. Included in the report are the findings from the hollow-stem auger drilling along with the results of subsequent groundwater sampling conducted on the property. This work has been completed for the Rutland Masonic Association by Griffin International, Inc. (Griffin).

II. HISTORICAL BACKGROUND

On May 7, 1998, Griffin inspected the removal and closure of a 1,000-gallon No. 2 Fuel Oil UST at the Rutland Masonic Temple. Fuel from this tank was used to heat the on-site building. The tank was located between the temple building and Center Street Alley on the west side of the building (see Site Map, Appendix A).

Upon removal, the tank was found to be in poor condition with major pitting identified on the exterior of the UST and numerous holes. Volatile organic compounds (VOCs) were detected in the soils from the limits of the excavation using a portable photoionization detector (PID). PID readings ranged from 10 to 134 parts per million (ppm). Groundwater was not encountered in the excavation to a depth of approximately eight feet below grade. Deeper excavation was not performed due to the close proximity of buildings, underground electrical utilities, and the brick alley. All soils from this excavation were backfilled after removal of the tank. Griffin submitted a tank closure report (Ref. 1), dated May 12, 1998, to the Vermont Department of Environmental Conservation (VTDEC).

In response to the soil contamination detected during the removal of the UST, the VTDEC requested additional work in order to further define the degree and extent of the contamination. This report presents the findings from the subsurface investigation.

III. SITE DESCRIPTION

The site is located on Washington Street in a primarily commercial area of downtown Rutland. Retail stores, restaurants, a senior citizens home (Bardwell House) and government offices (City Hall) are located on Strongs Avenue and Washington Street in the vicinity of the site (see Area Map, Appendix A). A residential area is also present to the east of the site. Local terrain slopes generally toward the northwest and groundwater flow beneath the site was estimated to be to the northwest toward East Creek. The Rutland Masonic Temple has a basement. This basement can be entered from the west

side of the building in the vicinity of the former tank. The majority of the property surrounding the temple is covered with pavement or brick. Some landscaped areas and lawn exist along the edges of the building (see Site Map).

The entire area is reportedly served by the municipal water and sewer systems. According to the Rutland Public Works Department, there are no private water supply wells in use in the area (Ref. 2).

According to the *Surficial Geologic Map of Vermont*, the overburden deposits in the surrounding area consist of pebbly sand (Ref. 3). According to the *Centennial Geologic Map of Vermont* (Ref. 4), the overburden deposits at the site are underlain by Dunham dolomite which is a buff-weathered, siliceous dolomite.

IV. SUBSURFACE INVESTIGATION

On November 11, 1998, four monitoring wells were installed at the site by T & K Drilling Inc. using a hollow-stem auger drill rig. The monitoring wells, designated MW-1 through MW-4, were installed in the vicinity of the former UST pit to help define the degree and extent of petroleum contamination at the site. MW-1 and MW-2 were installed north and south of the former tank location, respectively. MW-3 and MW-4 were installed in the estimated downgradient and upgradient locations from the former tank area, respectively. Site constraints including subsurface utilities and the narrowness of the alleyway prevented an optimum distribution of the monitoring wells for triangulation of groundwater flow direction. Specifically, installation of a well directly west of and in a possible downgradient direction from the former tank location was precluded by the presence of the Bardwell House and utilities. The locations of the wells are shown on the Site Map in Appendix A.

Soil samples were obtained in each boring at five-foot intervals using a split-spoon sampler. These soil samples were screened for VOCs using an HNu Model PI-101 PID.

In the boring for MW-1, well graded sand with silt was observed from grade to seven feet below grade. The 10'-12' split-spoon sample indicated the presence of poorly graded sand. Groundwater was encountered at approximately 5.5 feet below grade. Strong fuel oil odors were observed in the soils retrieved from three to four feet below grade. A PID reading of 55 ppm was measured in this sample.

In the boring for MW-2, well graded sand with silt was observed in the 5'-7' split-spoon sample. Well graded sand was observed in the 10'-12' split-spoon sample. Groundwater was encountered at approximately 8 feet below grade. A slight fuel oil odor was observed in the 5'-7' soil sample. A PID reading of 4.8 ppm was measured in this sample.

In the borings for MW-3 and MW-4, well graded sand with silt was predominant to at least seven feet below grade. Silt was observed in both borings in the 10'-12' split-spoon samples. Groundwater was encountered at approximately 8 feet below grade in both borings. Petroleum odors were not observed in any of the soils from either boring. In addition, no elevated PID readings were measured in the soil samples.

The monitoring wells were constructed with two-inch diameter, Schedule 40 PVC riser and 0.010" slotted screen. The screened portion of each monitoring well is set from 3 to 13 feet below grade. A silica sand pack was placed around the screened portion of each well to approximately 2.5 feet below grade. A bentonite seal was placed in the annulus immediately above the sand pack from 1.5 to 2.5 feet below grade. Native backfill was used for the remainder of the annular space to approximately one foot below grade. To complete the construction of each well, a road box was set in concrete at grade level. In addition, locking well caps were placed on the monitoring wells. The exploratory boring logs and well construction details for these wells are included in Appendix B.

Three drums of contaminated drill cuttings were generated during the installation of these four monitoring wells. Pickup and disposal of these soils was coordinated following the installation of the monitoring wells. Griffin contracted Environmental Products & Services to perform the waste pickup, transportation, and disposal of the soils offsite. The hazardous waste manifest for this disposal is included in Appendix C.

V. WATER LEVELS AND WATER QUALITY

A. Water Table Elevations

Water table elevation measurements were collected from MW-1 through MW-4 prior to sampling on November 20, 1998. In addition, the monitoring wells were surveyed in azimuth and elevation relative to the top-of-casing of MW-4 which has been assigned an arbitrary elevation of 100.00 feet. A free product (fuel oil) thickness of 0.35 feet was detected in MW-1. The corrected depth to water in each well was subtracted from the top-of-casing elevation of the well to determine the relative water table elevation. Liquid level monitoring data are presented in Appendix C.

Corrected water table elevations have been plotted and contoured to illustrate the estimated hydraulic gradient and direction of groundwater flow beneath the site (see Groundwater Contour Map, Appendix A). According to these data, it appears that groundwater is flowing to the northwest at a hydraulic gradient of 0.011 ft./ft. Based on these estimates, MW-4 appears to be hydraulically upgradient, and MW-1 and MW-3 appear to be downgradient from the former UST area. MW-2 is located near the upgradient end of the former tank pit area.

B. Water Quality

Griffin collected groundwater samples at the site from MW-2, MW-3 and MW-4. A groundwater sample was not collected from MW-1 due to the presence of free product. The samples were analyzed for petroleum compounds by EPA Method 8021B and Total Petroleum Hydrocarbons (TPH) by Modified EPA Method 8100. The analytical results have been plotted to show the distribution of contamination across the site (see Contaminant Concentration Map, Appendix A).

Dissolved contamination was not detected in the groundwater sample collected from upgradient well MW-4. Toluene was detected at a trace level of 1.2 parts per billion (ppb) in the sample from downgradient well MW-3. No other petroleum compounds were detected in this sample and TPH were non-detect also. Benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and the two trimethylbenzenes were detected at relatively low concentrations in the groundwater sample collected from MW-2. The Vermont Groundwater Enforcement Standards (VGESs) for 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, and naphthalene were exceeded in this sample. A low TPH concentration of 9.29 mg/L was measured in this sample.

The trip blank and duplicate sample results indicate that proper quality assurance and quality control were maintained during the sampling and analysis. A groundwater quality summary for this sampling event is presented in tabular form in Appendix D. The Endyne laboratory analytical reports are also included in this appendix.

VI. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the Rutland Masonic Temple property. A visual survey was conducted at the time of soil boring advancement and during the tank closure inspection. An assessment of the potential risk to identified receptors was made based on proximity to the source area, groundwater flow direction and gradient, soil observations made during the drilling effort, and groundwater analytical data.

Water Supplies

The Rutland Masonic Temple and the surrounding businesses and residences are served by the Rutland City Water System which obtains its water from a reservoir in Mendon located east of the city. According to the Rutland Department of Public Works, there are no private drinking water supply wells in use in the area of the Rutland Masonic Temple (Ref. 2).

Buildings in the Vicinity

The temple has a basement for the potential accumulation of petroleum vapors. However, on the west side of the building, the basement is predominantly above grade. This suggests that the basement is likely at low risk of impact since there is minimal (if any) contact of contaminated soils with the basement walls. In addition, fuel oil tends to have minimal volatility. Nonetheless, Griffin screened the basement for VOCs using a PID on November 11, 1998. The kitchen area and furnace room on the west side of the basement (nearest the former UST location) were screened. No elevated PID readings were measured and no petroleum odors were evident.

In addition, the Bardwell House, situated approximately 20 feet west of the former tank location, is likely at minimal risk for the same reasons as the temple building. This basement was not screened on the day of drilling.

Surface Water

The nearest surface water to the site is East Creek which is located approximately one-half mile west of the site. Based on the lack of contamination in downgradient monitoring well MW-3, it appears that there is currently no risk to East Creek from the fuel oil contamination at the site.

Utilities

Subsurface utilities are located beneath Center Street Alley including electrical, phone, and sewer. It is possible that the shallow contamination in the soils and groundwater at the site could follow a preferential pathway along these utility lines given the apparent shallow water table (i.e., approximately 3.5 to 6 feet below grade).

VII. CONCLUSIONS

Based on the investigation at this site, Griffin has reached the following conclusions:

1. There has been an apparent release of fuel oil at the site related to leaks and possible spills/overfills from a No. 2 Fuel Oil UST. The source was removed on May 7, 1998.

2. Well graded sand with silt was predominant in each of the four exploratory soil borings. Significant adsorbed petroleum contamination was detected in the soils from the boring advanced for MW-1 located directly downgradient of the former UST basin. Adsorbed soil contamination was relatively minor in the boring for MW-2. Soil contamination was not observed during the drilling of the MW-3 and MW-4 borings.

3. Based on the water table elevation data collected in November, 1998, groundwater beneath the site appears to be flowing northwest at a hydraulic gradient of 0.011. Under this flow regime, MW-1 and MW-3 are hydraulically downgradient of the former UST location (i.e., the source area).

4. Approximately four inches of free product were detected in MW-1 which is located directly downgradient from the former UST area. This observation indicates that fuel oil has migrated at least 10 feet downgradient from the former tank area.

5. The target VOCs in the EPA Method 8021B laboratory analysis were not detected in the groundwater from upgradient well MW-4. A trace level of toluene was detected in the farthest downgradient well MW-3. Relatively low concentrations of dissolved petroleum compounds were detected in MW-2. The only exceedances of Vermont Groundwater Enforcement Standards were for naphthalene and the two trimethylbenzenes in the MW-2 sample.

6. Based on the groundwater flow direction and groundwater quality data, the upgradient and downgradient extents of dissolved contamination appear to have been sufficiently determined at this time. However, the presence of subsurface utilities beneath Center Street Alley could be affecting the transport of contaminants away from the source area given the shallow water table. These utilities may provide a preferential pathway for contaminant migration.

7. The risk assessment for this site has determined that there appears to be little risk to the Rutland Masonic Temple and Bardwell basements, and to the nearest surface water. There are no reported private drinking water supplies in use in the area, and the public water supply is not at risk from the fuel oil contamination at the site. The only receptors which appear to be at potential risk are the utility lines (power, phone, sewer) which run beneath Center Street Alley. These utility lines could provide a means for contaminant transport to sensitive receptors in the area.

VIII. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends that a quarterly groundwater monitoring schedule be initiated at this site. The quarterly site visits should include sampling of all wells not containing free product and groundwater analysis by EPA Method 8021B. The free product thickness in MW-1 should be monitored during these site visits. If a significant amount of product remains in this well, a program of bailing and/or passive recovery may need to be initiated. The first quarterly site visit should occur in February 1999. After this site visit, the need for active or passive product removal will be evaluated.

In addition, a more detailed review of the subsurface utilities in the area should be performed. Sewer manholes in the vicinity of the site should be screened if possible

using a PID to assess whether they have been impacted by the fuel oil contamination from the site. The orientation and elevation of utility corridors in the direct vicinity should be further researched to determine if other area potential receptors along the trend of these corridors may be at potential risk of vapor or product impact from the Rutland Masonic Temple former UST source area.

After completion of each quarterly sampling event, a summary report should be prepared for submittal to the VTDEC. This report should include liquid level monitoring data, groundwater quality data, a revised Groundwater Contour Map and Contaminant Concentration Map, as well as an updated receptor survey, conclusions, and recommendations.

REFERENCES

1. Griffin International, Inc., May 12, 1998, Tank Closure Inspection Report for Rutland Masonic Temple, Rutland, Vermont.

2. Telephone conversation between Griffin International and Rutland Department of Public Works, January 7, 1999.

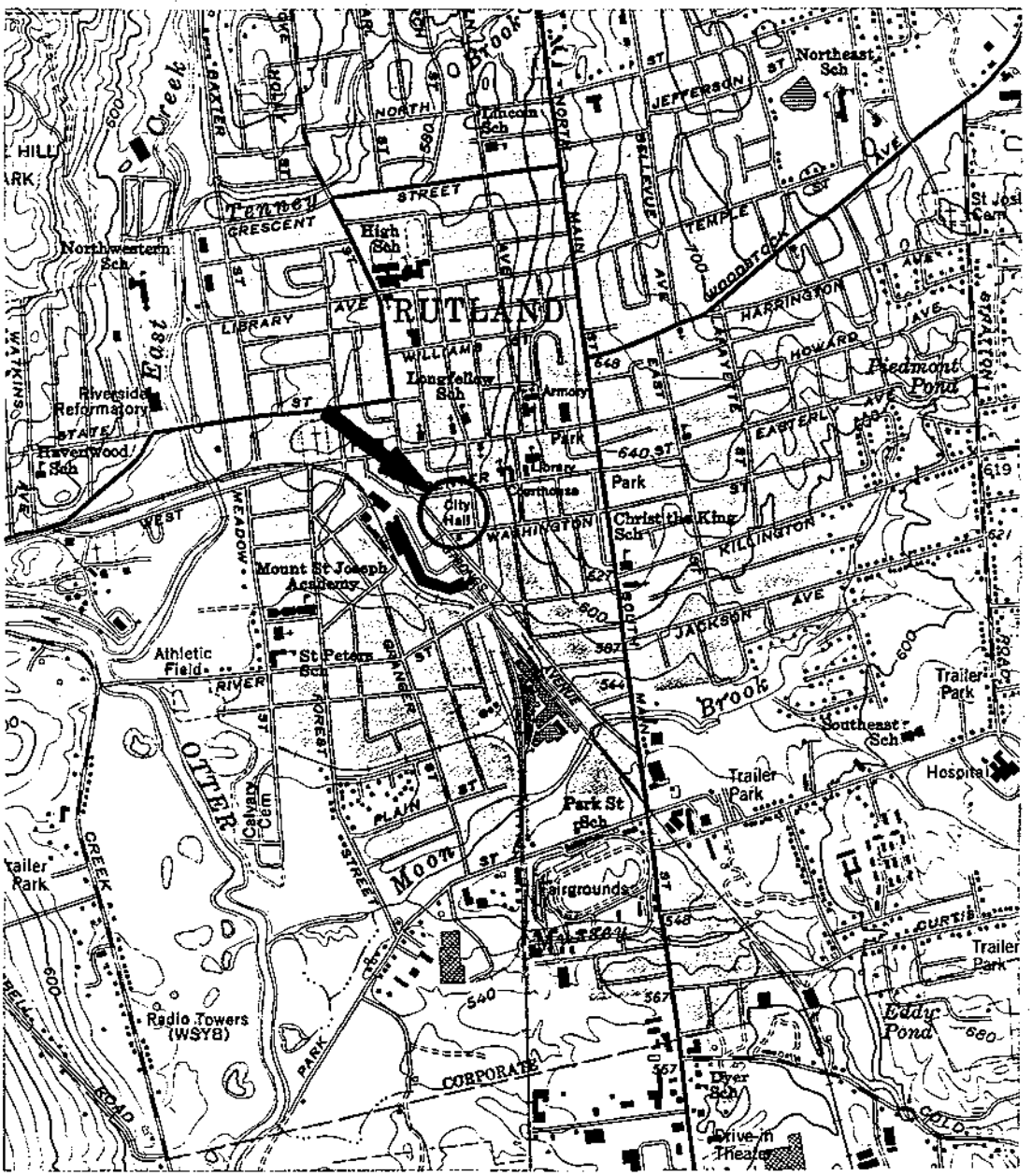
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.

4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.

APPENDIX A

Maps

Site Location Map
Area Map
Site Map
Groundwater Contour Map
Contaminant Concentration Map



SOURCE: USGS– RUTLAND, VERMONT QUADRANGLE

JOB #: 99841382

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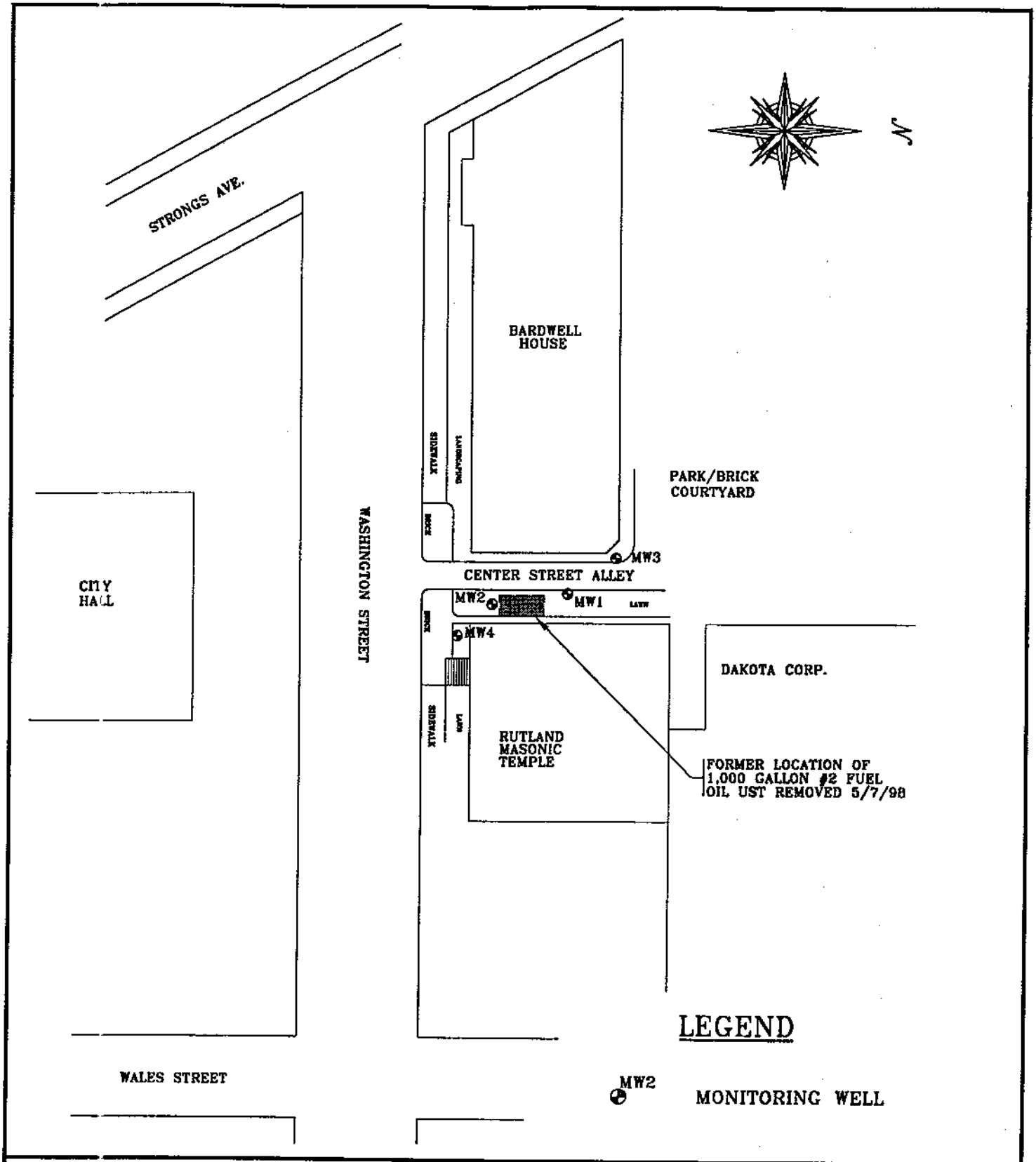
RUTLAND MASONIC TEMPLE

RUTLAND, VERMONT

SITE LOCATION MAP

DATE: 11/12/98	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:KM



JOB #: 99841382

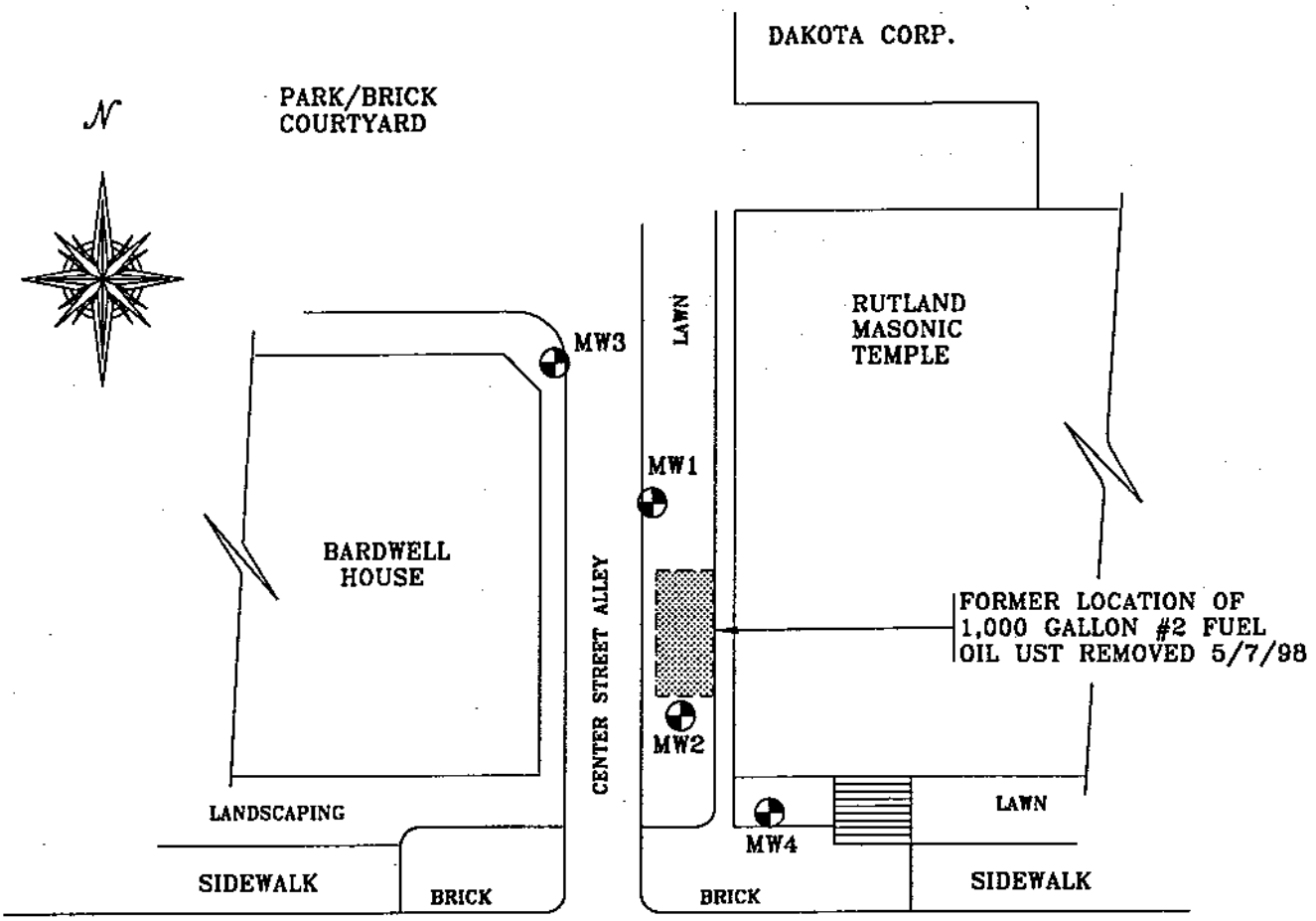
GRIFFIN INTERNATIONAL INC

RUTLAND MASONIC TEMPLE

RUTLAND, VERMONT

AREA MAP

DATE: 11/12/98	DWG.#:2	SCALE: NONE	DRN.:SB	APP.:KM



JOB #: 99841382

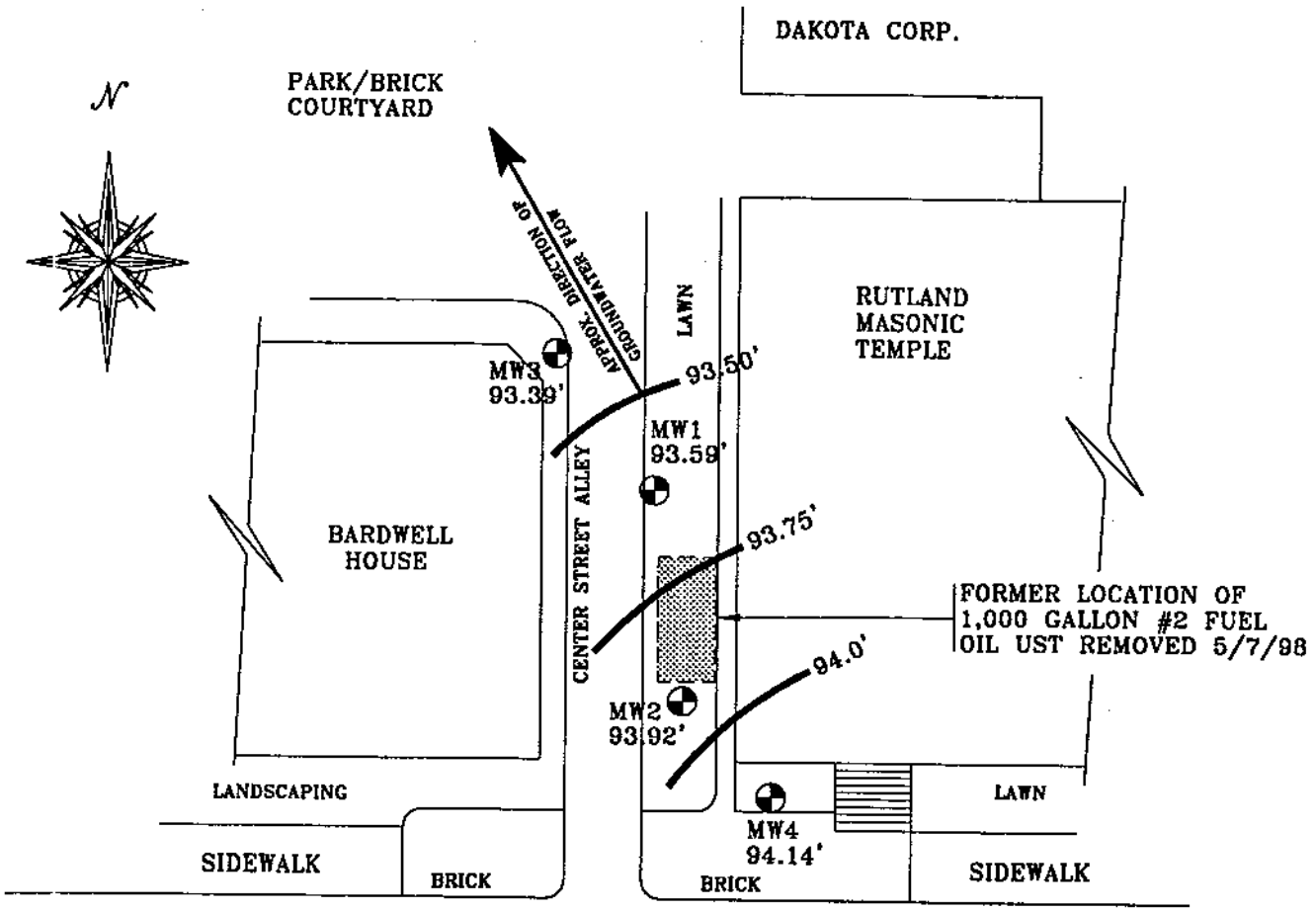
GRIFFIN INTERNATIONAL INC

RUTLAND MASONIC TEMPLE

RUTLAND, VERMONT

SITE MAP

DATE: 11/12/98	DWG.#:3	SCALE: 1"=30'	DRN.:SB	APP.:KM



LEGEND

MW2 93.92' MONITORING WELL AND WATER TABLE ELEVATION IN FEET

93.75' GROUNDWATER CONTOUR IN FEET (DASHED WHERE INFERRED)

JOB #: 99841382

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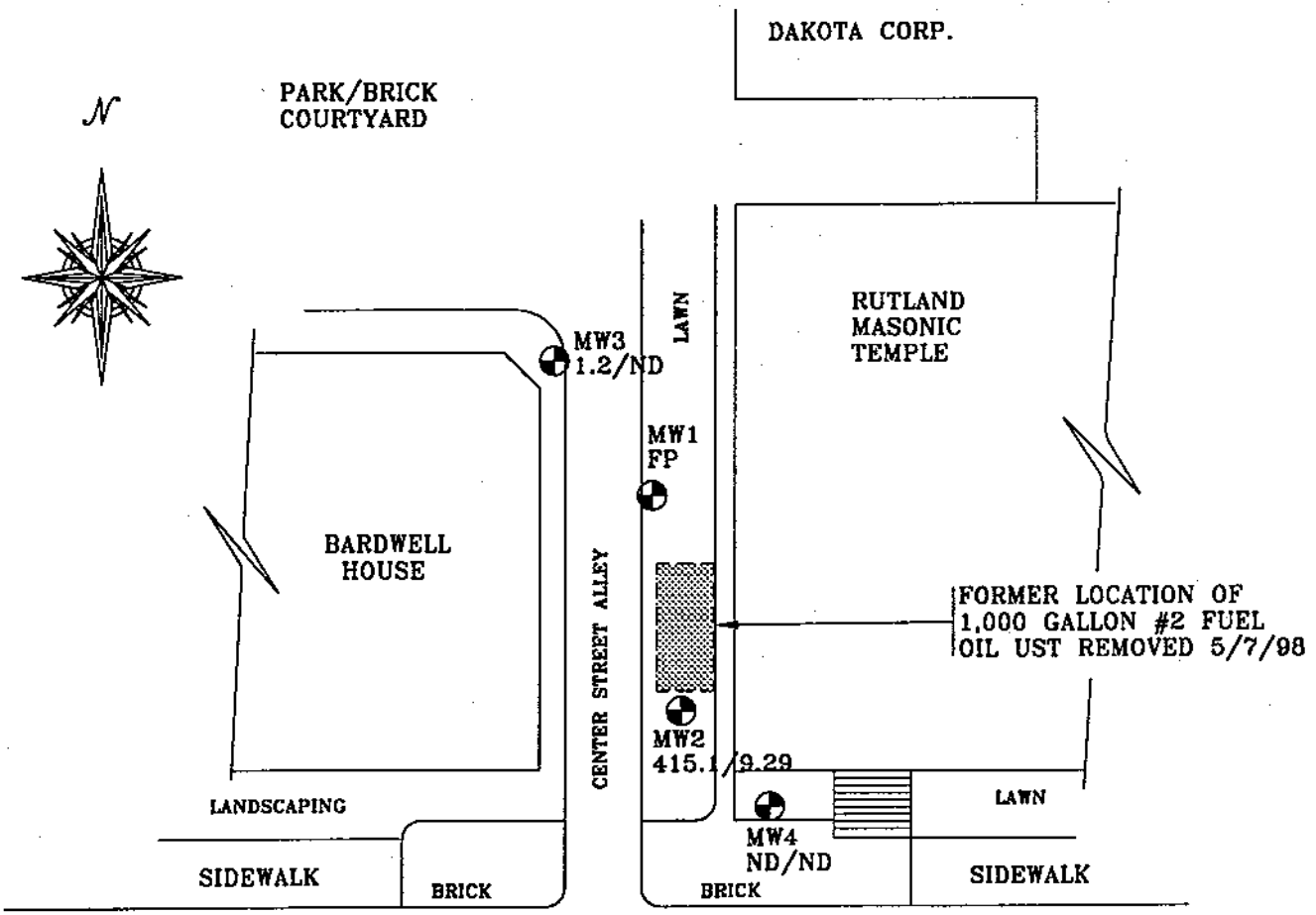
RUTLAND MASONIC TEMPLE

RUTLAND, VERMONT

GROUNDWATER CONTOUR MAP
MEASUREMENT DATE: 11/20/98

DATE: 1/7/99	DWG.#:4	SCALE: 1"=30'	DRN.:SB	APP.:KM



LEGEND

MW2 415.1/9.29	MONITORING WELL AND TOTAL 8021B VOCs (ppb)/TPH (ppm)
FP	FREE PRODUCT
ND	NONE DETECTED

JOB #: 99841382

GRIFFIN INTERNATIONAL INC

RUTLAND MASONIC TEMPLE

RUTLAND, VERMONT

CONTAMINANT CONCENTRATION MAP
SAMPLE DATE: 11/20/98

DATE: 1/7/99	DWG.#:5	SCALE: 1"=30'	DRN.:SB	APP.:KM

APPENDIX B

Exploratory Boring Logs

PROJECT RUTLAND MASONIC TEMPLE

LOCATION RUTLAND, VERMONT

DATE DRILLED 11/11/98 TOTAL DEPTH OF HOLE 13.0'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

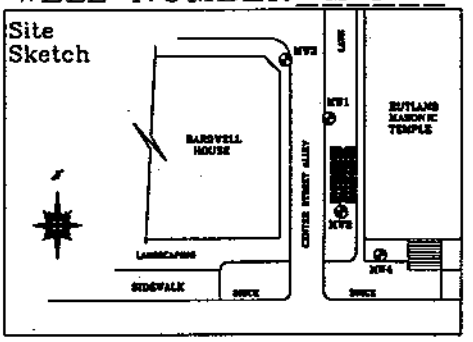
CASING DIA. 2" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN LOG BY K. McGRAW

WELL NUMBER MW1

Site Sketch



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DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
		LOCKING WELL CAP			
		CONCRETE	0'-1' 0.8 ppm	WELL GRADED SAND WITH SILT (SW-SM) 10% silt, rapid dilatancy, low toughness, nonplastic, no dry strength, very soft consistency; 90% fine sand, well graded, weak cementation, brown, moist, homogenous, strong HCL reaction, no odor.	
1		NATIVE BACKFILL			1
2		BENTONITE			2
3		WELL RISER	3'-4' 55 ppm	Same as above with strong fuel odor.	3
4					4
5					5
6		SAND PACK	5'-7' 1/8/13/17 4.4 ppm	5.5' WATER TABLE ▼	6
7				WELL GRADED SAND WITH SILT (SW-SM) 10% silt, rapid dilatancy, low toughness, nonplastic, no dry strength, very soft consistency; 90% fine sand, trace fine gravel, well graded, dark olive gray, wet, homogenous, no HCL reaction, fuel oil odor.	7
8					8
9		WELL SCREEN			9
10					10
11			10'-12' 7/10/11/16 0.4 ppm	POORLY GRADED SAND (SP) 90% fine sand, 10% fine, angular gravel, trace silt, poorly graded, moderate cementation, light brown, wet, homogenous, weak HCL reaction, no odor.	11
12		BOTTOM CAP			12
13		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 13' END OF EXPLORATION AT 13'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT RUTLAND MASONIC TEMPLE

LOCATION RUTLAND, VERMONT

DATE DRILLED 11/11/98 TOTAL DEPTH OF HOLE 13.0'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

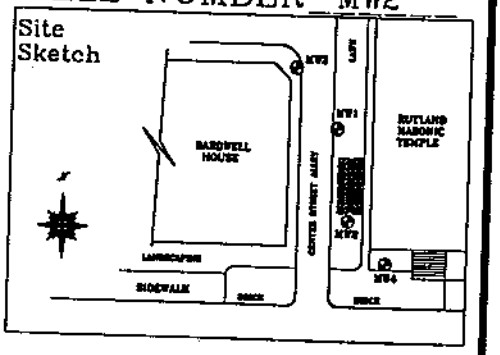
CASING DIA. 2" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN LOG BY K. McGRAW

WELL NUMBER MW2

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE	0'-1' 0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, dry, brown, homogenous, no HCL reaction, no odor.	0
1		NATIVE BACKFILL			1
2		BENTONITE			2
3		WELL RISER			3
4					4
5					5
6		SAND PACK	5'-7' 2/3/6/8 4.8 ppm	WELL GRADED SAND WITH SILT (SW-SM) 10% silt, rapid dilatancy, low toughness, nonplastic, no dry strength, soft consistency; 90% sand, well graded, moderate cementation, brown/gray, fissured, no HCL reaction, slight odor.	6
7					7
8				8.0' WATER TABLE ▼	8
9		WELL SCREEN			9
10					10
11			10'-12' 57/18/17/20 0 ppm	WELL GRADED SAND (SW) trace silt, 90% fine to medium sand, 10% fine, angular gravel, well graded, moderate cementation, light brown, wet, homogenous, no HCL reaction.	11
12		BOTTOM CAP			12
13		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 13' END OF EXPLORATION AT 13'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

WELL NUMBER MW3

PROJECT RUTLAND MASONIC TEMPLE

LOCATION RUTLAND, VERMONT

DATE DRILLED 11/11/98 TOTAL DEPTH OF HOLE 13.0'

DIAMETER 4.25"

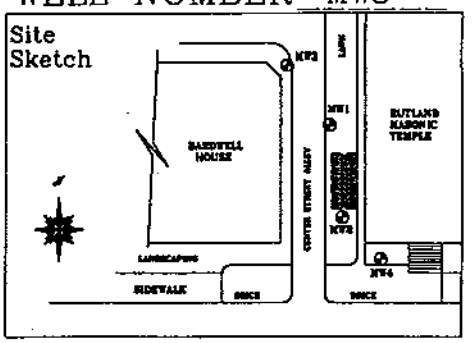
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN LOG BY K. McGRAW

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE	0'-1' 0 ppm	WELL GRADED SAND WITH SILT (SW-SM) 10% silt, rapid dilatancy, low toughness, nonplastic, no dry strength, soft consistency; 90% fine to medium sand, trace fine, subangular gravel, well graded, weak cementation, dark brown, moist, homogenous, weak HCL reaction, no odor.	0
1		NATIVE BACKFILL			1
2		BENTONITE			2
3		WELL RISER			3
4					4
5					5
6		SAND PACK	5'-7' 3/3/5/10 0 ppm	WELL GRADED SAND WITH SILT (SW-SM) 10% rapid dilatancy, low toughness, nonplastic, no dry strength, very soft consistency, silt, 90% very fine sand, trace fine gravel, well graded, moderate cementation, dark brown/olive brown, moist, fissured, no HCL reaction, no odor.	6
7					7
8					8
9		WELL SCREEN		8.0' WATER TABLE ▼	9
10					10
11			10'-12' 2/3/5/26 0 ppm	SILT (ML) 100% silt, rapid dilatancy, low toughness, low plasticity, low dry strength, soft consistency, light olive brown, wet, homogenous, weak HCL reaction, no odor.	11
12		BOTTOM CAP			12
13		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 13' END OF EXPLORATION AT 13'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT RUTLAND MASONIC TEMPLE

LOCATION RUTLAND, VERMONT

DATE DRILLED 11/11/98 TOTAL DEPTH OF HOLE 13.0'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

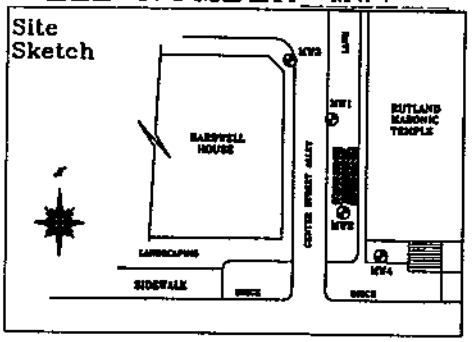
CASING DIA. 2" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN LOG BY K. McGRAW

WELL NUMBER MW4

Site Sketch



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP CONCRETE	0'–1' 0 ppm	WELL GRADED SAND (SW) 100% fine to medium, subangular sand, well graded, weak cementation, gray, dry, homogenous, strong HCL reaction, no odor.	0
1		NATIVE BACKFILL			1
2		BENTONITE			2
3		WELL RISER			3
4					4
5				WELL GRADED SAND WITH SILT (SW–SM) 10% silt, rapid dilatancy, low toughness, nonplastic, no dry strength, soft consistency; 90% fine to medium subangular sand, trace fine gravel, well graded, weak cementation, brown, moist, lensed, weak HCL reaction, no odor. 1" thick lense of medium sand at approx. 6.0' b.g.	5
6		SAND PACK	5'–7' 2/2/2/6 0 ppm		6
7					7
8					8
9		WELL SCREEN		8.0' WATER TABLE ▼	9
10					10
11			10'–12' 5/2/3/2 0 ppm	SILT WITH SAND (ML) 80% silt, rapid dilatancy, low plasticity, low dry strength, very soft consistency; 15% fine to medium, subangular sand, 5% fine to medium, subangular gravel, well graded, weak cementation, light brown, wet, homogenous, no HCL reaction, no odor.	11
12		BOTTOM CAP			12
13				BASE OF WELL AT 13' END OF EXPLORATION AT 13'	13
14		UNDISTURBED NATIVE SOIL			14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

APPENDIX C

Hazardous Waste Manifest

VERMONT AGENCY OF NATURAL RESOURCES
HAZARDOUS MATERIALS MANAGEMENT
103 South Main Street
Waterbury, Vermont 05671-0404
802-241-3866

RECEIVED DEC 14 1998

FOR STATE USE ONLY

Please type (or print) *(Form designed for use on elite (12-pitch) typewriter.)*

COPY 8: GENERATOR RETAINS

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. VTP000008861 — Manifest Document No. 15781	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but may be required by State law.

3. Generator's Name and Mailing Address: [illegible] ASSOCIATION, 51 WASHINGTON ST., RUTLAND, VT 05701

4. Generator's Phone (802 773-3300

A. State Manifest Document Number VT 0115781

B. Generation Site (if different) SAME

5. Transporter 1 Company Name: ENVIRONMENTAL PRODUCTS & SERVICES, IN

6. US EPA ID Number: NYD980761191

C. Trans. 1 Lic. St. VT Plate # 24C9C

D. Trans. 1 Phone (315 471-0503

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. Trans. 2 Lic. St. Plate #

F. Trans. 2 Phone (

9. Designated Facility Name and Site Address: ENVIRONMENTAL PRODUCTS & SERVICES, INC., 532 STATE FAIR BLVD., SYRACUSE, NY 13204

10. US EPA ID Number: NYD980761191

G. State Facility's ID (Not Required)

H. Facility's Phone (315 471-0503

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE NON RCRA SOLID, NOS (OIL SOAKED DEBRIS), NONE, NONE	003	DM	03700	P	EPA NONE / STATE VT02 N816
b.					EPA / STATE
c.					EPA / STATE
d.					EPA / STATE

J. Additional Descriptions for Materials Listed Above: a. b. c. d.

K. Handling Codes for Wastes Listed Above: a. Interim / Final; b.; c. Interim / Final; d.

15. Special Handling Instructions and Additional Information
a. 15593 Job #: V1901
PO #:
ERG A. NA
Emergency #:(315)471-0503

Point of Departure or Entry - City, State

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and all applicable State law and regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: DONALD MELANDER AGENT FOR — Signature: [signature] — Month Day Year: 12 1 98

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: [illegible] — Signature: [signature] — Month Day Year: 12 1 98

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: — Signature: — Month Day Year:

In the event of a spill or emergency, contact the National Response Center 1-800-424-8802 and if within Vermont, The Vermont Department of Public Safety 1-800-641-5005.

VT0115781

APPENDIX D

Liquid Level Monitoring Data

Liquid Level Monitoring Data
Rutland Masonic Temple, Rutland, VT

11/20/98

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	96.88	3.25	3.60	0.35	0.88	0.31	3.29	93.59
MW-2	98.04		4.12					93.92
MW-3	96.32		2.93					93.39
MW-4	100.00		5.86					94.14

All Values Reported in Feet

Top-of-Casing Elevations Measured in Feet Relative to MW-4 set at 100.00'

APPENDIX E

Groundwater Quality Summary

Laboratory Reports

Groundwater Quality Summary
Rutland Masonic Temple
Rutland, Vermont

November 20, 1998

PARAMETER	Sample Point MW-1	MW-2	MW-3	MW-4	VGES
MTBE	Not	ND	ND	ND	40
Benzene	Sampled	4.5	ND	ND	5.
Toluene	Due To	3.0	1.2	ND	1,000.
Ethylbenzene	Free	25.6	ND	ND	700.
Xylenes	Product	132.	ND	ND	10,000.
1,3,5-Trimethylbenzene	(0.35')	33.0	ND	ND	4.
1,2,4-Trimethylbenzene		115.	ND	ND	5.
Naphthalene		102.	ND	ND	20.
Total 8021B VOCs		**415.1**	**1.2**	**ND**	-
TPH		9.29	ND	ND	-

All Values Reported in ug/L (ppb), except TPH which is reported in mg/L (ppm)

VGES - Vermont Groundwater Enforcement Standard

TPH - Total Petroleum Hydrocarbons

ND - None Detected

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Masonic Temple
REPORT DATE: December 1, 1998
DATE SAMPLED: November 20, 1998

PROJECT CODE: GIMT1721
REF.#: 131,598 - 131,602

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Masonic Temple
CLIENT PROJ. #: 99841382

DATE RECEIVED: November 23, 1998
REPORT DATE: December 1, 1998
PROJECT CODE: GIMT1721

Ref. #:	131,598	131,599	131,600	131,601	131,602
Site:	Trip Blank	MW #4	MW #2	Duplicate	MW #3
Date Sampled:	11/20/98	11/20/98	11/20/98	11/20/98	11/20/98
Time Sampled:	7:20	12:10	12:37	12:37	13:01
Sampler:	D. Tourangeau	D. Tourangeau	D. Tourangeau	D. Tourangeau	D. Tourangeau
Date Analyzed:	11/27/98	11/30/98	11/30/98	11/30/98	11/30/98
UIP Count:	0	0	>10	>10	8
Dil. Factor (%):	100	100	50	50	100
Surr % Rec. (%):	94	101	99	110	96
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
MTBE	<10	<10	<20	<20	<10
Benzene	<1	<1	4.5	4.6	<1
Toluene	<1	<1	3.0	2.9	1.2
Ethylbenzene	<1	<1	25.6	27.5	<1
Xylenes	<1	<1	132.	142.	<1
1,3,5 Trimethyl Benzene	<1	<1	33.0	35.4	<1
1,2,4 Trimethyl Benzene	<1	<1	115.	125.	<1
Naphthalene	<1	<1	102.	114.	<1

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated

ENDYNE, INC.
32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

#99841382

131598-602 GIMT 1721 / 1722

31196

CHAIN-OF-CUSTODY RECORD

Project Name: MASONIC TEMPLE Site Location: RUTLAND	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: GIMT 1721	Company: Contact Name/Phone #: KEVIN MCERNEY	Sampler Name: DON TOURANGEAU Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 11-20-98	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
131598	TRIP BLANK	H2O	X		07:20	2	40ml		8021B	HCL	
131599	MW#4	↓	↓		12:10	↓	↓		↓		
131600	MW#2				12:37						
131601	DUPLICATE				12:37						
131602	MW#3				13:01				↓		
)	MW#4				12:10				30		
	MW#2				12:37				30		
	MW#3	↓	↓		13:01	↓	↓		30		

Relinquished by: Signature [signature]	Received by: Signature [signature]	Date/Time 11-23-98 10:10
Relinquished by: Signature [signature]	Received by: Signature [signature]	Date/Time 11-23-98 10:10

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): TPH BY EPA 8100 MODIFIED										

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Masonic Temple/#99841382
DATE REPORTED: December 1, 1998
DATE SAMPLED: November 20, 1998

PROJECT CODE: GIMT1722
REF. #: 131,603 - 131,605

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100

DATE: December 1, 1998
CLIENT: Griffin International
PROJECT: Masonic Temple/#99841382
PROJECT CODE: GIMT1722
COLLECTED BY: Don Tourangeau
DATE SAMPLED: November 20, 1998
DATE RECEIVED: November 23, 1998

Reference #	Sample ID	Concentration (mg/L)[1]
131,603	MW #4; 12:10	ND[2]
131,604	MW #2; 12:37	9.29
131,605	MW #3; 13:01	ND

Notes:

1 Values quantitated based on the response of #2 Fuel Oil. Method detection limit is 0.4 mg/L.
2 None Detected